November 25, 2005

Mr. Michael Kansler
President
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - EXTENDED POWER UPRATE, VERMONT YANKEE NUCLEAR POWER STATION (TAC NO. MC0761)

Dear Mr. Kansler:

By letter dated September 10, 2003, as supplemented by letters dated October 1, and October 28 (2 letters), 2003, January 31 (2 letters), March 4, May 19, July 2, July 27, July 30, August 12, August 25, September 14, September 15, September 23, September 30 (2 letters), October 5, October 7 (2 letters), December 8, and December 9, 2004, and February 24, March 10, March 24, March 31, April 5, April 22, June 2, August 1, August 4, September 10, September 14, September 18, September 28, October 17, October 21 (2 letters), October 26, October 29, November 2, and November 22, 2005, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. submitted a proposed license amendment to the Nuclear Regulatory Commission (NRC) for the Vermont Yankee Nuclear Power Station (VYNPS). The proposed amendment, "Technical Specification Proposed Change No. 263, Extended Power Uprate" would allow an increase in the maximum authorized power level for VYNPS from 1593 megawatts thermal (MWt) to 1912 MWt.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure. We request that the additional information be provided by December 2, 2005. The response timeframe was discussed with Mr. Craig Nichols of your staff on November 23, 2005. If circumstances result in the need to revise your response date, or if you have any questions, please contact me at (301) 415-1420.

Sincerely,

/RA/

Richard B. Ennis, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: As stated

cc w/encl: See next page

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NAME	REnnis	CRaynor	DRoberts
DATE	11/25/05	11/25/05	11/25/05

OFFICIAL RECORD COPY

Vermont Yankee Nuclear Power Station

cc:

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. David R. Lewis
Pillsbury, Winthrop, Shaw, Pittman, LLP
2300 N Street, N.W.
Washington, DC 20037-1128

Mr. David O'Brien, Commissioner
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620-2601

Mr. James Volz, Chairman
Public Service Board
State of Vermont
112 State Street
Montpelier, VT 05620-2701

Chairman, Board of Selectmen
Town of Vernon
P.O. Box 116
Vernon, VT 05354-0116

Operating Experience Coordinator
Vermont Yankee Nuclear Power Station
320 Governor Hunt Road
Vernon, VT 05354

G. Dana Bisbee, Esq.
Deputy Attorney General
33 Capitol Street
Concord, NH 03301-6937

Chief, Safety Unit
Office of the Attorney General
One Ashburton Place, 19th Floor
Boston, MA 02108

Ms. Carla A. White, RRPT, CHP
Radiological Health
Vermont Department of Health
P.O. Box 70, Drawer #43
108 Cherry Street
Burlington, VT 05402-0070

Mr. James M. DeVincentis
Manager, Licensing
Vermont Yankee Nuclear Power Station
P.O. Box 0500
185 Old Ferry Road
Brattleboro, VT 05302-0500

Resident Inspector
Vermont Yankee Nuclear Power Station
U. S. Nuclear Regulatory Commission
P.O. Box 176
Vernon, VT 05354

Director, Massachusetts Emergency
Management Agency
ATTN: James Muckerheide
400 Worcester Rd.
Framingham, MA 01702-5399

Jonathan M. Block, Esq.
Main Street
P.O. Box 566
Putney, VT 05346-0566

Mr. John F. McCann
Director, Licensing
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Mr. Gary J. Taylor
Chief Executive Officer
Entergy Operations
1340 Echelon Parkway
Jackson, MS 39213

Vermont Yankee Nuclear Power Station

cc:

Mr. John T. Herron
Sr. VP and Chief Operating Officer
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Mr. Oscar Limpias
Vice President, Engineering
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Mr. Christopher Schwartz
Vice President, Operations Support
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Mr. Michael J. Colomb
Director of Oversight
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Mr. Travis C. McCullough
Assistant General Counsel
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Mr. Jay K. Thayer
Site Vice President
Entergy Nuclear Operations, Inc.
Vermont Yankee Nuclear Power Station
P.O. Box 0500
185 Old Ferry Road
Brattleboro, VT 05302-0500

Mr. James H. Sniezek
5486 Nithsdale Drive
Salisbury, MD 21801

Ms. Stacey M. Lousteau
Treasury Department
Entergy Services, Inc.
639 Loyola Avenue
New Orleans, LA 70113

Mr. Raymond Shadis
New England Coalition
Post Office Box 98
Edgecomb, ME 04556

Mr. James P. Matteau
Executive Director
Windham Regional Commission
139 Main Street, Suite 505
Brattleboro, VT 05301

Mr. William K. Sherman
Vermont Department of Public Service
112 State Street
Drawer 20
Montpelier, VT 05620-2601

Mr. Michael D. Lyster
5931 Barclay Lane
Naples, FL 34110-7306

Ms. Charlene D. Faison
Manager, Licensing
440 Hamilton Avenue
White Plains, NY 10601

REQUEST FOR ADDITIONAL INFORMATION

REGARDING PROPOSED LICENSE AMENDMENT

EXTENDED POWER UPRATE

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

By letter dated September 10, 2003, as supplemented by letters dated October 1, and October 28 (2 letters), 2003, January 31 (2 letters), March 4, May 19, July 2, July 27, July 30, August 12, August 25, September 14, September 15, September 23, September 30 (2 letters), October 5, October 7 (2 letters), December 8, and December 9, 2004, and February 24, March 10, March 24, March 31, April 5, April 22, June 2, August 1, August 4, September 10, September 14, September 18, September 28, October 17, October 21 (2 letters), October 26, October 29, November 2, and November 22, 2005, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. submitted a proposed license amendment to the Nuclear Regulatory Commission (NRC) for the Vermont Yankee Nuclear Power Station (VYNPS). The proposed amendment, "Technical Specification Proposed Change No. 263, Extended Power Uprate" would allow an increase in the maximum authorized power level for VYNPS from 1593 megawatts thermal (MWt) to 1912 MWt.

The NRC staff is reviewing your extended power uprate (EPU) amendment request and has determined that additional information is required to complete the review. The specific information requested is addressed below.

Probabilistic Risk Assessment (PRA) Licensing Branch A (APLA)
Reviewer: Marty Stutzke

1. Supplement 38, Attachment 1, page 9: Provide the engineering assessment that shows that the residual heat removal (RHR) and core spray (CS) pumps can operate at significantly reduced net positive suction head (NPSH) compared to the design NPSH, which is based on the results of tests conducted at Browns Ferry as described in NUREG/CR-2973. Have the conclusions of this engineering assessment been discussed with the pump manufacturer (Sulzer Bingham)? If so, does the pump manufacturer concur with the conclusions?

2. Supplement 38, Attachment 1, page 19 and Supplement 39, Attachment 1, pages 12 and 13: It is stated that Electric Power Research Institute (EPRI) TR-1009325 was used to determine the probabilities of containment pre-existing leakage. The NRC staff has not yet accepted this reference as a technical basis for granting permanent 15-year integrated leak rate test (ILRT) intervals. In fact, the Nuclear Energy Institute (NEI) submitted an updated version of this document for further staff review on October 26, 2005. The staff notes that the technical basis for containment leakage probabilities used to justify the one-time 15-year ILRT interval that was granted in VYNPS Amendment No. 227, dated August 31, 2005, was EPRI TR-104285, and that the containment leakage probabilities in this report are notably higher than those provided in EPRI TR-1009325. Either justify the use of EPRI TR-1009325 as an acceptable source

of containment leakage probabilities, or reassess the change in core-damage frequency (CDF) caused by crediting containment accident pressure using containment leakage probabilities that are consistent with the recently granted one-time 15-year ILRT interval.

3. Supplement 38, Attachment 1, page 20 and Supplement 39, Attachment 1, page 22: Provide the high confidence of low probability of failure (HCLPF) values used in the Seismic Margins Analysis (SMA) of VYNPS for the following: reactor coolant system piping, reactor vessel supports, safety relief valves (SRVs), and the containment.

4. Supplement 38, Attachment 1, page 20 and Supplement 39, Attachment 1, page 22: Could a fire simultaneously cause a stuck-open relief valve and a failure of the containment isolation (CI) system?

5. Supplement 39, Attachment 1, general: Is the overall intent of the risk evaluation of the proposed containment overpressure credit to provide a sensitivity analysis that investigates modeling uncertainty in the baseline post-EPU PRA? The NRC staff notes that Supplement 38 indicates no overpressure credit is required using realistic assumptions. Hence, there should be no changes between the pre-EPU and post-EPU PRA models with respect to their treatment of the proposed overpressure credit.

6. Supplement 39, Attachment 1, general: Does the change in CDF only consider the impact of the proposed overpressure credit, or does if also include the impact of other changes resulting from the proposed EPU (e.g., shorter operator times due to higher decay heat)?

7. Supplement 39, Attachment 1, page 13: It is stated that containment integrity (Event IP) is considered when the hardened torus vent is being used (Event VT) to prevent over-pressurization failure of the containment following a loss of torus cooling (Event TC). It is difficult to interpret the event tree logic (e.g., the large loss-of-coolant accident (LOCA) event tree) in the context of this statement since Event IP appears before Event VT. To help clarify the NRC staff's understanding of the modeling approach taken, provide a narrative explanation of each core-damage sequence in the large LOCA event tree.

8. Supplement 39, Attachment 1, page 14: If the containment is not intact (Event IP occurs), why is it possible to credit alternative injection and containment overpressure (COP) control (Event AI)?

9. Supplement 39, Attachment 1, page 18 and Tables 3.2A and 3.3: On page 18, it is stated that CONFIG#1 represents the risk when the COP is not available and CONFIG#2 represents the risk when the COP is available. However in Tables 3.2A and 3.3, the CDF associated with CONFIG#1 is lower than for CONFIG#2. Please clarify. Also, note that in Table 3.3, the total CDF for CONFIG#1 is incorrect (typographical error).

10. Supplement 38, Attachment 1, page 18: It is stated that the only difference between the model cases lies in Endstate Bin IIV. However, Table 3.2A indicates that Endstate Bins ID, IIIC, IVA, and IC also change. Please clarify.